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ABSTRACT

Teacher training sessions were examined to determine why four teachers receiving the same training in implementing explanation behavior in reading instruction differed in the success with which they carried out the new strategies. Audiotaped training sessions, trainer self-reports, and teacher interviews were qualitatively analyzed to identify the characteristics of successful teacher change. Results revealed three major differences between the training of the one successful and the three unsuccessful teachers: (1) while the other trainers only gave oral and written explanations, the successful teacher's trainer both emphasized the thinking a teacher must go through when planning and implementing a lesson and demonstrated the selected behaviors; (2) unlike the others, this trainer provided training through the actual implementation of instructional strategies and gradually diminished help as the teacher adjusted his instructional behavior; and (3) the successful teacher's trainer modeled aloud the thinking a teacher must do to plan and implement the process. (The criteria for evaluating instructional communication is appended.) (MM)

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Training Teachers for Instructional Change in Reading: A Descriptive Study

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Abstract

This paper reports a descriptive study that reveals elements contributing to effective classroom interventions. It grew from a study of teachers trained to use selected explanation behaviors by four separate trainers, all involved in teacher education programs. Though we assumed that the teachers would learn and implement the desired behaviors, only one of the four was consistently successful. We analyzed processes used by each trainer to determine if there were any differences. At first it appeared that all four teachers received virtually identical help from their respective trainers. However, analysis of the descriptive data revealed three major differences. First, the successful teacher's trainer emphasized the thinking a teacher must go through when planning and implementing a lesson and demonstrated the selected behaviors rather than just giving oral and written explanation. Second, the less successful teachers' training was relatively abrupt whereas the successful teacher's training continued through actual implementation of instructional strategies, gradually diminishing as the teacher adjusted his instructional behavior. Third, the successful teacher's trainer modeled aloud the thinking a teacher must do to plan and implement the process.

TRAINING TEACHERS FOR INSTRUCTIONAL CHANGE IN READING: A DESCRIPTIVE STUDY[1]

Laura R. Roehler, Roy Wesselman, and Joyce Putnam[2]

Studies of reading instruction often include training sessions designed to change teachers' instructional behaviors, yet little is available on effective interventions (Joyce & Showers, 1981). A prevalent assumption held by teacher educators, is that if teachers know about a strategy and want to use it, they will be able to do so. All they need is the information. However, an intervention study in reading instruction we conducted with four second-grade teachers negates that assumption. All four teachers received new information, learned strategies, wanted to use them, and worked hard trying to do so. However, only one teacher consistently succeeded. Four trainers, all involved in teacher education programs, provided the instructional treatments, each trainer being paired with a teacher for the duration of the study. While all four of the teachers received identical written materials, each trainer systematically used different communication strategies while orally elaborating on the written text. The differences among the trainers' strategies helped explain the continued success of one teacher. In this paper we focus on how one trainer's strategies differed from those of the other three.

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[1]Paper presented at the National Reading Conference, Clearwater Beach, Florida, December, 1982.

[2]Laura R. Roehler is co-coordinator of the IRT's Teacher Explanation Project. Roy Wesselman, Joyce Putnam, and Roehler are all associate professors in MSU's Department of Teacher Education.

Overview of the Study

This descriptive study of how teachers can improve their reading instruction grew from an analysis of the explanation behavior of four teachers. In that analysis we tried to determine if a relationship existed between the rated explicitness of the information provided by the teacher during the lesson, awareness demonstrated by low-group students following instruction, and their subsequent achievement on standardized tests (Roehler, Duffy, Book, & Wesselman, 1983). Regarding explanation behavior, we hypothesized that explicit explanations by teachers would result (1) in an increase in low-group students' awareness of what was to be learned in a lesson, why it was being learned, and how to apply what was learned and (2) in increased student achievement. We provided the teachers initially with written training materials followed by five intervention sessions (described later). As teachers became knowledgeable about the new strategies, they implemented them in the classroom. We observed each teacher six times and interviewed the low-group students individually after each of the lessons to determine how aware each one was of what skill had just been learned, when it would be appropriate to use that skill, and how the skill would be used. After we completed the explanation study, we rated all lessons and student interviews. The findings suggested a strong relationship between the explicitness of the teachers' explanations and students' awareness and achievement outcomes. When teacher explanations were less clear and rated lower, we found that the students were less aware of what they were doing and why, and achievement was correspondingly lower. Conversely when teacher explanations were clearer and were rated higher by observers, the students' awareness was rated higher and achievement gain was greater.

The students' reading achievement growth was measured by their pre- and posttest scores on the Woodcock Reading Mastery Test. In three months one teacher's students (Teacher B) gained over a year's growth; growth in the other three classrooms was less impressive. Similarly, Teacher B's low-group students consistently demonstrated more awareness than did the low-group students from the other three classrooms (Roehler & Duffy, 1983).

We had expected all four teachers in the explanation study would be able to implement the explanation strategies at a high level of proficiency. In fact, only Teacher B consistently used the strategies effectively. The natural question was, therefore, why did the teachers' implementation differ when they each received interventions for the same length of time based on the same written materials?

We decided to examine specifically the training process used with these teachers to determine if any differences existed between the most successful teacher and the other three teachers in how they were taught to use explicit explanation. We felt the findings would be useful in future research efforts when changes in instructional behaviors are expected.

Procedures

Data for the present study came from an analysis of the training procedures used in the explanation behavior study. There were four trainers, each of whom trained one teacher in five separate sessions. Each training session was conducted for 30 to 60 minutes during a free period over 12 weeks. Each trainer used the same set of instructional materials. Because training sessions followed observations of the teachers' reading instruction and were intended to influence what the teacher did in a subsequent observed lesson, it was necessary for each trainer to tailor the various sessions to the needs of the individual teacher. Consequently, the content of the sessions varied somewhat from teacher to teacher.

Data collection. Following each training session for a particular teacher, the trainer audiotaped his/her own descriptive report of what happened during the session. S/he was guided in this self-report by an outline that prompted a description of the purpose of the session, the sequence followed, the strategies employed, the teacher's observed responses, and any other information deemed important. In addition to the trainer's self-report, s/he conducted a 45-minute interview with each teacher at the end of the study to determine the teacher's perceptions of the training sessions. We analyzed the trainers' self-reports and the final interviews with the teachers. The total data set included 20 trainer self-reports (5 per teacher) and four final teacher interviews.

Data analysis. The total data set was qualitatively analyzed to identify the characteristics of successful teacher change in the development and implementation of explanation behavior in reading instruction. We compared the training sessions and interview responses of the most successful teacher to those interventions of the less successful teachers and generated descriptive statements about the critical differences between them, which we then categorized and described.

Findings

Superficially at least, the descriptive findings indicated that all four teachers received virtually identical training from their trainers. Each trainer delivered the training in a three-stage sequence: (1) provide the information, (2) model the information, and (3) allow the teacher an opportunity to apply it. However, when we examined more closely the trainer/teacher interactions of Teacher B, it became apparent that qualitative differences existed in the way his trainer implemented the three-stage training model. It

appears that Teacher B's trainer not only provided him with relevant information but also assisted him as he tried out his new cognitive structures for skill lessons. Specifically, she assisted the teacher as he manipulated the key elements of explanation behavior, moving from trainer-dominated intervention sessions to teacher-dominated interventin sessions. The intervention pattern for Teacher B was very similar to the instructional pattern he was being taught to implement for reading lessons.

In the following section, we contrast the training of the less successful teachers with the training of Teacher B for each of the three stages to characterize the features of an apparently successful process of teacher instructional change.

Stage One: Providing Information

In this stage, all teachers received a set of written materials that described the basic content to be learned. All teachers were asked to study the materials that built background knowledge for teacher explanation behavior in reading instruction and to discuss them with their trainers at a later time. All the teachers did so, and all pairs of teachers and trainers discussed the written materials, developed understandings, clarified misunderstandings, and resolved questions.

However, the procedures the trainer used with Teacher B went beyond reading and discussing the background materials and having questions and concerns clarified. We discerned three distinct differences in the trainer's intervention treatment at this stage.

First, the trainer created links between the information in the intervention materials and the background experience of the teacher, both in terms of knowledge and of classroom behavior. She heavily emphasized the teacher's strong background knowledge of educational psychology and any displays of the

components of teacher explanation behavior evidenced during the observed baseline lesson. For instance, since Teacher B knew about modeling, and since he had been explicit that the lesson was about recognizing base words ending in "ing," the trainer focused on these aspects.

Second, the trainer then developed the concept of teacher-explanation behavior using examples of appropriate and inappropriate behavior drawn from the same previously observed lesson. Again, the trainer used Teacher B's lesson (recognizing base words) to illustrate her point. Because Teacher B provided students with only parts of the sequential procedure needed to recognize base words ending in "ing," a discussion about using the whole procedure ensued. The trainer explained that the "how" component of explicit explanation follows the sequential procedure of (1) recognizing a problem (I can't pronounce the word "riding" in the sentence. "The boy was riding on a large dog."); (2) searching one's repertoire of skills for a strategy (drop "ing" and add "e"); (3) trying out the strategy (when I drop i-n-g and add e, I have ride) and (4) checking to see if the word is right ("Ride," not "rid," makes sense in the sentence so the word must be "riding"). This discussion then led to other examples the teacher had used and those which he had not used (non-examples). Because Teacher B had failed to include information about when to use the skill, the trainer made this the basis for further discussion. A statement of when to use the skill was given as an appropriate example (you will use this skill when you read the next story in your basal reader this afternoon). As part of this discussion, the trainer provided concrete statements illustrating the need for a short time lapse between instruction and use of the skill. The trainer explained that

> it is not enough to tell students that the skill will be used in reading--that is too general. Rather, application and usage statements need to be more concrete and immediately relevant such as, "You will use

this skill in 30 minutes when you read the next story in the basal." In other words, explanations of when skills are used should include statements that are specific and that have a short time lapse between the explanation and the application stages.

Finally, the third difference in Stage 1 was that the trainer asked Teacher B to note his own performance in the previously observed lesson using a check list (see Appendix A). Since Teacher B's behavior had been the basis of the discussion, this rating allowed the trainer to verify Teacher B's understanding of explanation behavior. During the presentation component of the lesson, he rated himself as to whether or not he communicated what was to be learned and when it was important, whether or not he made explicit the principle that governs what was taught and whether or not he modeled for the students the salient features of the lesson. This self rating continued through the interactive, practice, and application components of a lesson. In sum, the three phases of (1) building a background, (2) building a concept, and (3) verifying knowledge were included in Stage 1 of Teacher B's training. This contrasted sharply with the training given to the other three teachers, who received only written information about the process. The assumption was that the teachers could apply it by themselves.

Stage Two: Providing a Model

At this stage, the less successful teachers only had access to a written example of a lesson. For them, this example served as the model of teacher explanation behavior in reading. Since this model was part of the background materials, the three other trainers treated it as part of Stage 1. Again, only Teacher B received oral modeling of explanation behavior that went beyond the written materials. This modeling, occurring during lesson development in the interventions, focused on think-aloud strategies based on Meichenbaum's cognitive behavior-modification strategies (1977). The think-aloud strategies

allowed Teacher B to observe the trainer doing a normally unobservable mental process (i.e., lesson development). The trainer thought aloud about how to prepare lessons using explanatory behavior. Because Teacher B had chosen to teach r-controlled words for the next observed lesson, the trainer first thought aloud how to identify the salient features of the skill. She stated:

> Recognizing r-controlled words is a decoding skill. The salient feature is that the vowel or vowels in front of the r assume a new sound. In this lesson, "ur," "er," and "ear" all have the same new sound. Therefore, I want my students to use this new sound as they try to pronounce words that contain the "ur," "er," and "ear" combinations. I'm also going to make a mental note to myself to do the same types of lessons for "ar" and "or" words.

After modeling how one thinks through the analysis of the salient features of the selected skill, the trainer then modeled how one develops explanations in skill lessons using the format of a presentation, an interaction, a practice, and an application. For the presentation component, the trainer thought aloud about how to present statements about what was being learned, why one would learn it, and how one manipulates the salient features of the skill to successfully use it. The trainer ended the presentation phase for Teacher B by modeling how a student could think through the use of the mental processes used in "r" controlled words. She thought aloud:

> When I am reading in a book and I come to a word that I can't say, I look for clues in the word that will help me. I see an "er" combination. I know that sound is the same sound I hear in fur--ur. I put that sound in the word and I pronounce it as winner. I check to see if it makes sense in the sentence. It does, so I go on reading.

After she modeled how to develop the presentation component of a skill lesson, she modeled the interactive component to be used when the teacher verified the student's understanding of the skill. The interactive phase included strategies from Vygotsky's work, as described by Werstch (1979) and focused on the mental processing needed to use the newly presented skill. According to Vygotsky, the teacher creates learning situations when success

rates are immediately high and remain high as students move from teacher-regulated to self-regulated learning. At first, the teacher directs the students how to use the mental processes of the skill. Gradually, s/he moves from directives to questions and then to supportive statements. At the close of the interactive component, the students should be using the newly acquired skill independently and should have a cognitive understanding of the mental processes they used.

The practice component followed. In this component the teacher provides the student with multiple opportunities to practice the skill until it becomes habitual. The trainer thought aloud to model this component. Last, the trainer modeled the application component. Here she stressed using the skill in connected text.[3]

Then Teacher B built his own lesson for the decoding skill of r-controlled words by planning aloud. The trainer assessed whether the teacher had included the important elements in each of the components (presentation to students, student/teacher interaction, students practice, students apply to related text) and provided assistance when needed. The teacher subsequently taught this lesson as the trainer observed.

In summary, during Stage 2, providing a model, only Teacher B received assistance in developing a skill lesson that incorporated the components of explanation behavior. This teacher's training in Stage 2 had three parts: (1) The trainer modeled how one thinks when identifying the mental processes to be taught, (2) the trainer modeled the mental processing within the

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[3]When children read, they read selections meant for enjoyment or information. The words are connected in a way that makes sense, as opposed to single words or isolated sentences unrelated to each other.

structure of explanation lessons, and (3) the teacher used such modeling to build his own lesson, which he subsequently taught. The modeling stage for Teacher B contrasted sharply with that of the other three teachers, who only received a written model.

Stage Three: Providing Opportunity to Apply Information

During this stage, the less successful teachers independently applied to their reading lessons what they had learned about explanation behavior from reading the written materials. After observing these lessons, the three other trainers gave feedback regarding the appropriateness or inappropriateness of explanation behavior. When behaviors were appropriate, they gave positive comments. When the behaviors were inappropriate, they asked these teachers to rethink the components of teacher explanation behavior described in the background materials.

Teacher B also applied what he had learned about teacher explanation. However the application for Teacher B differed greatly from that of the other three teachers. Rather than only getting feedback after behaviors were observed, Teacher B received proactive, guided assistance as he tried out the new explanation behaviors. Specifically, the trainer gave gradually diminishing assistance and corrective and supportive feedback during the development and teaching of the lessons until the teacher was applying explanation strategies totally on his own. He was learning to gradually internalize the components of teacher explanation behavior and gradually assume more decision making about skill-lesson development. Note that the learning situation for Teacher B was very similar to the learning situation he was trying to create for his own students. He gradually moved from other-regulated to self-regulated lesson development and implementation.

The movement from trainer-regulated to teacher-regulated lesson development occurred as follows. During the first intervention, the trainer controlled the lesson development by modeling it in its entirety. In the second intervention, the trainer told the teacher how to develop the presentation and modeled by thinking aloud the interactive, practice, and application components. In the third intervention, the trainer (1) asked questions as Teacher B developed the presentation and interactive components and (2) provided directives on how to develop the practice and application components. In the fourth intervention, the teacher developed the presentation and interactive components as the trainer gave supportive and corrective feedback. The trainer asked Teacher B questions as he developed the practice and application components. In the fifth and last intervention, the teacher developed all components of an explanation lesson while the trainer gave supportive feedback.

As can be seen, during initial sessions Teacher B received a great deal of assistance, which gradually diminished as he became more knowledgeable about explanation behavior. He gradually moved from trainer-regulated to self-regulated instructional planning of the skill lessons that focused on making sense of connected text. Even though none of the teachers were initially knowledgeable about the entire process of building and teaching skill lessons that focus on the mental processing students use when reading, with trainer support Teacher B was able immediately to correctly and successfully use the procedures until he reached the point at which his independent understanding of explanation behavior matched his ability to plan lessons incorporating its components. None of the other teachers had this opportunity.

During the intervention sessions, when the trainer gave feedback to Teacher B about the previously taught lesson, she emphasized the mental

processing needed for lesson development. If the teacher provided students with supportive or corrective feedback that focused on the mental processing used to answer questions, the trainer strongly supported it. Thus, in Stage 3, providing opportunity to apply information, Teacher B was the only one to receive gradually diminishing assistance about how to incorporate explanation behavior into skill lessons as he gradually developed decision making during lesson planning.

As noted earlier, from the first intervention on Teacher B succeeded in applying what he had learned, as measured by observer ratings (see Table 1).

Table 1

Observers' Ratings of Four Teachers' Explanation Behavior and Students' Degree of Awareness

Lesson	Explanation Behavior: Information Provided to Students				Students' Degree of Awareness of Mental Processing			
	Teacher				Teacher			
	A	B	C	D	A	B	C	D
1	3.6[a]				8.3			
	36.3	18.5	4.5	22.7	50.0	19.4	8.3	8.3
2	27.2		4.5		8.3		8.3	
	36.3	77.3	13.6	22.7	33.3	81.3	25.0	16.9
3					16.6			
	36.3	90.9	54.5	45.5		75.0	50.0	16.9
4	45.5				58.3			
	22.7	68.2	9.1	90.9	8.3	66.7	8.3	66.6
5					25.0			
	27.7	54.5	9.1	72.7		46.7	8.3	33.3
6					16.6			
	18.2	77.3	9.1	72.7		75.0	8.3	33.3

[a]Two lessons were taught during the same observation time.

For the lesson observed before intervention, he received a rating of 18.5% for explanation behavior, while the students received an initial baseline rating of 19.4% for the degree of awareness. Beginning immediately after the first intervention, Teacher B received high scores for all of his observed lessons (54.5% to 90.9%). Note that when he taught his first comprehension lessons (Lessons 4 and 5), his rating dropped, but began rising again in Lesson 6 as he gained familiarity with the strategies. The students also received high ratings for their awareness of the mental processing to be used (46.7% to 81.3%). In contrast, the other three teachers displayed erratic explanation patterns.

Discussion

Based on the qualitative findings of this study, it appears that differences in how training is delivered can influence how it is implemented. Teacher B's trainer used different communication strategies, which produced qualitatively different results. Teacher B successfully incorporated explanation behavior into his reading lessons; the other three teachers were less successful.

What was different about the communication strategies of Teacher B's training sessions? All four teachers' training followed an identical three-stage sequence of getting information, observing a model of the information, and applying the information. Consequently, the difference was more than one of sequence, procedure, or format. The difference was in the manner in which the content at each stage was delivered.

We identified three crucial differences in delivery. First, Teacher B's training emphasized not what the lesson would ultimately look like, but

rather, the thinking one goes through to create such a lesson. For instance, while the other three teachers' trainers emphasized checklists describing criteria of a good explanation in reading, Teacher B's trainer emphasized the process one thinks through to create lessons that are examples of these criteria. Likewise, while the other three teachers' trainers gave their teachers written models of lessons that had already been planned, Teacher B's trainer actually planned a lesson the teacher would use talking aloud while doing so, making visible for the teacher the thinking that goes into such planning. Teacher B's trainer exposed him to a cognition-processing strategy for accomplishing the desired instructional behavior that resulted in successful instructional change. The other three teachers were exposed to the end product only and were less successful in effecting instructional change.

The second difference in delivery involved the relatively abrupt training provided to the other teachers versus a longer training period for Teacher B. Teacher B's trainer exercised some control and regulation over implementation efforts during the early lessons by initially offering more assistance and gradually withdrawing her assistance as he began to internalize the desired instructional behavior. This follows Vygotsky's premise that learning should move gradually from other-regulated to self-regulated behaviors. In contrast, the other three teachers' trainers tended to provide all the information in one session and expected the teachers to independently apply it in the subsequent lesson. In the remaining interventions they reiterated the original written materials using a checklist. However, the trainer's presence and assistance during Teacher B's planning sessions seemed to help Teacher B succeed immediately and gave him time to learn and implement the instructional strategies using his own routines of instructional practice.

The third difference in delivery was the help Teacher B received to analyze and improve his own performances. Rather than just being told about an instructional strategy, the trainer assisted Teacher B as he changed his cognitive structures for skill lessons. Teacher B observed the trainer verbally modeling how one thinks when preparing for a lesson featuring explicit explanation and how one goes about teaching such a lesson. He learned how to analyze his own performance and received corroborative feedback about using the models.

Although we intended to give all four teachers identical training (as evidenced by the fact that all the trainers followed identical three-stage sequences and spent the same amount of time in working with the teachers), in practice, the qualitative differences in how the three stages were implemented, particularly as they related to the focus on the thinking process, to the gradualness of implementation, and to the modeling of the desired instructional strategies, seem to explain why Teacher B's training was so much more successful than that of the other teachers.

Teacher B was more successful at implementing the strategies because he received and learned information in a procedure very similar to the instructional strategy he was trying to implement with his students. Just as he tried to create lessons that first provided information through presentations and then provided opportunities for students to successfully test that information (interactive component and practice prior to application), so his trainer tried to provide information through presentations and then give Teacher B opportunities to successfully use that information with diminishing directed assistance.

Implications

Two implications can be drawn from this investigation of the strategies involved in teacher instructional change in reading. One relates to researchers, the other to teacher educators.

When researchers decide to investigate problems about instructional change, we suggest that they (1) use explicit explanations that focus on the mental processes to be learned, (2) illustrate how a teacher needs to think when planning for instruction, (3) model the planning of desired instructional strategies and (4) use diminishing directed assistance with supportive and corrective feedback. It seems that the omission of the above elements result in less change in instructional behavior. When teacher educators and others concerned about improved instruction provide instructional information to teachers, they need to present the steps of our three-stage sequence in a way that approximates the instructional strategies the teacher is attempting to build. Having information presented and having opportunities to successfully use the information in controlled interactive situations prior to independent application seem to effect more successful application of the desired strategies by teachers than do other training methods.

Researchers need to systematically study how to effectively train teachers to implement instructional change because the validity of their research findings on reading instruction is tied directly to their ability to successfully train teachers to implement the instructional strategies being studied.

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Appendix A

Criteria for Evaluating

Instructional Communication

Criteria for Evaluating Instructional Communication

Component Criteria	Yes	No
Presentation		
Does the teacher communicate what is to be learned?		
Does the teacher communicate why it is important?		
Does the teacher explicitly surface the principle that governs the operation of the task?		
Does the teacher explicitly point out for pupils the salient features one attends to in order to do the task successfully?		
Does the teacher model how successful readers think through the task?		
Is it internal mental processing made visible for the pupil?		
Does the modeling reflect the undergirding principle and how the salient features are used?		
Interaction		
Does the lesson follow a simple to complex progression?		
Does the teacher provide cues and/or highlighting regarding the salient features noted in the lesson introduction?		
Are the cues provided by the teacher gradually diminished as the lesson progresses?		
Does the teacher include in the review an assessment of whether pupils are consciously aware of - what was taught - why it was taught - how to think one's way through it		
Practice		
Does the teacher include practice activities that - allow the child to practice the same task as the one taught? - ask the child to use what was taught in connected text?		

Application

Does the teacher indicate when the skill will be used?

Does the teacher cue the students to the use of the skill prior to the actual reading of connected text?

General Comments: